

# 'Mint' pain killer takes leaf out of ancient medical texts

August 21 2006

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A new synthetic treatment inspired by ancient Greek and Chinese remedies could offer pain relief to millions of patients with arthritis and nerve damage, a new University of Edinburgh study suggests.

The Greek scholar Hippocrates treated sprains, joint pains and inflammation by cooling the skin, and traditional Chinese remedies used mint oil to the same end. Now scientists have discovered that cooling chemicals which have the same properties as mint oil have a dramatic pain-killing effect when applied in small doses to the skin.

Unlike conventional pain killers, these compounds are likely to have minimal toxic side-effects, especially because they are applied externally to the skin. This should mean they are ideal for chronic pain patients for whom conventional pain killers often do not work.

The Edinburgh study sets out exactly how the 'mint oil' compounds (and related more powerful chemicals) work. They act through a recently discovered receptor (a protein which is capable of binding with these chemicals) which is found in a small percentage of nerve cells in the human skin. The scientists have found that when this receptor, called TRPM8, is activated by the cooling chemicals or cool temperatures, it inhibits the 'pain messages' being sent from the locality of the pain to the brain. Thus, the new treatment makes good use of the body's own mechanisms for killing pain.

The findings would doubtless have been of interest to Hippocrates, the

founding father of modern medicine. Writing in the fifth century BC, in chapter 5 of his classic text, Aphorisms, he stated: "Swellings and pains in the joints, ulceration, those of a gouty nature, and sprains, are generally improved by a copious affusion of cold water, which reduces the swelling, and removes the pain; for a moderate degree of numbness removes pain."

Professor Susan Fleetwood-Walker, who jointly led the study with Dr Rory Mitchell, says:

"This discovery of the pain-relieving properties of mint oil and related compounds has great potential for alleviating the suffering of millions of chronic pain patients, including those with arthritis or those who have had nerve damage or spinal injury following major accidents. Conventional painkillers such as morphine are often ineffective in cases of chronic pain, and simply lowering the temperature of the skin is too inexact."

"Our discovery means that patients can be given low doses of a powerful pain killer, delivered through the skin, without side effects. We hope clinical trials on the compounds will begin within the year."

Source: University of Edinburgh

Citation: 'Mint' pain killer takes leaf out of ancient medical texts (2006, August 21) retrieved 30 April 2024 from <https://medicalxpress.com/news/2006-08-mint-pain-killer-leaf-ancient.html>

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